



ALTAIR PRODUCTS EXCEL ON SUPERMICRO H13 HYPER SERVERS

Enterprise-focused platform designed for high end performance and flexibility

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2U A+ Server AS -2125HS-TNR (NVMe/SAS/SATA)



2U A+ Server AS -2025HS-TNR (NVMe/SAS/SATA)

Executive Summary

Combining large datasets, advanced simulation techniques, and machine learning fuels scientific discovery and innovation across multiple industries. Altair makes data-intensive analytics operations easier for engineers and researchers to access and manage. Supermicro H13 Hyper systems afford Altair a flexible range of computing, networking, storage, and I/O expansion capabilities to perform at their best and accelerate engineering, research, and design on high-performance and high-throughput systems. In addition, using Altair on Supermicro servers reduces the total cost of ownership (TCO) and improves return on investment (ROI) by leveraging the optimized systems.

Gain high performance, flexibility, scalability, and serviceability to demanding IT environments and to power mission-critical enterprise workloads.

- Dual AMD EPYC™ 9004 Series Processors
- Up to 6TB DDR5-4800MHz in 24 DIMMs
- Flexible NVMe, SAS, and SATA drive options
- Configurable PCIe 5.0 expansion capabilities with CXL 1.1+ memory expansion
- AIOM slots with OCP 3.0 support
- Titanium-Level efficiency power supplies

Solution Highlights

Supermicro H13 Hyper systems support the AMD EPYC™ 9004 Series processors product line, offering 96 cores per CPU and 192 cores per server. The CPU's 128 lanes of PCIe 5.0 bandwidth enable massive amounts of parallel I/O in the system, and system configurations are available to meet just about any storage need, which supports various levels of Altair businesses, like high-throughput scheduling, cloud bursting, etc.

Supermicro H13 Hyper compute node configurations for Altair

Table 1 shows recommendations for computational fluid dynamics (CFD) applications such as Altair® AcuSolve®. Supermicro servers with 4th Gen EPYC processors with 12 memory channels per processor and support for AVX-512 instructions can deliver high throughput per node for CFD applications such as AcuSolve since they benefit from multicore parallelism and greater memory bandwidth.

	Server/Processor	Memory	Storage/Network
Air Cooled	<ul style="list-style-type: none"> Dual Socket AS -2125HS-TNR 2x EPYC 9654P Up to 192 cores/384T 2.0 GHz - 2.15 GHz L3 Cache of 384MB TDP 360W 	<ul style="list-style-type: none"> 24 DIMM slots Up to 6TB: 3DS ECC Registered RDIMM, DDR5-4800MHz 	<ul style="list-style-type: none"> 24 Hot-swap 2.5" NVMe/SAS/SATA 1 AIOM/OCP NIC 3.0 Slot

Table 1: Recommended Supermicro H13 Hyper servers configurations for Altair AcuSolve

Table 2 shows recommendations for structural analysis using implicit finite element analysis (FEA), such as Altair® OptiStruct®. Supermicro servers with lower-core count EPYC processors with high frequencies with support for AVX-512 instructions help efficiently utilize per-core software licenses and offer very high performance per core.

	Server/Processor	Memory	Storage/Network
Air Cooled	<ul style="list-style-type: none"> Dual-Socket AS -2025HS-TNR 2x EPYC 9354 Up to 192 cores/384T 2.30 GHz - 2.40 GHz L3 Cache of 256MB TDP 280W 	<ul style="list-style-type: none"> 24 DIMM slots Up to 6TB: 3DS ECC Registered RDIMM, DDR5-4800MHz 	<ul style="list-style-type: none"> 12 Hot-swap 2.5" NVMe/SAS/SATA 1 AIOM/OCP NIC 3.0 Slot

Table 2: Recommended Supermicro H13 Hyper servers configurations for Altair OptiStruct

Table 3 shows recommendations for crash applications using explicit FEA such as Altair® Radioss®. Supermicro servers with medium-core count EPYC processors with high frequencies and high cache-per-core and support for AVX-512 instructions offer very high performance per core to help efficiently utilize per-core software licenses.

	Server/Processor	Memory	Storage/Network
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Air Cooled	<ul style="list-style-type: none"> • Dual-Socket AS -2025HS-TNR • 2x EPYC 9354 • Up to 192 cores/384T • 2.30 GHz - 2.40 GHz • L3 Cache of 256MB • TDP 280W 	<ul style="list-style-type: none"> • 24 DIMM slots • Up to 6TB: 3DS ECC Registered RDIMM, DDR5-4800MHz 	<ul style="list-style-type: none"> • 12 Hot-swap 2.5" NVMe/SAS/SATA • 1 AIOM/OCP NIC 3.0 Slot
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Table 3: Recommended Supermicro H13 Hyper servers configurations for Altair Radioss

How Supermicro H13 Servers Accelerate Enterprise Workloads

Designed for Enterprise Applications

You need high performance for your enterprise applications. The flexible selection of density and storage capacity gives you a high-performance server for every purpose, including:

- Virtualization and cloud, including virtual desktop infrastructure with GPU acceleration
- Hyperconverged infrastructure
- Enterprise applications, including database, customer relationship management, and enterprise resource planning
- High performance computing clusters

Consistent Deployment

You get consistent, tool-less deployment and maintenance of both the motherboard and the systems themselves. And our versatile motherboard powers all three of our H13 Hyper systems. Each system has configuration options that enable varying numbers of expansion slots and disk drives simply by ordering or swapping the appropriate kits. This feature means customers can have systems tailored to application needs but with complete architectural consistency. This helps to reduce the chance of errors that can cause downtime and ease the need for staff to train on multiple server types. With H13 Hyper systems, they are all based on the same infrastructure.

Open Management

Our open management APIs and tools are ready to support you. In addition to a dedicated IPMI port and a Web IPMI interface, Supermicro® SuperCloud Composer software helps you configure, maintain, and monitor all of your systems using single-pane-of-glass management. If your DevOps teams prefer to use their own tools, industry-standard Redfish® APIs provide access to higher-level tools and scripting languages.



H13 Generation	Dual-Socket AS -1125HS-TNR	Dual-Socket AS -2025HS-TNR	Dual Socket AS -2125HS-TNR
Form Factor	1U rackmount	2U rackmount	2U rackmount
Processor Support	<ul style="list-style-type: none"> • Dual SP5 socket for two AMD EPYC™ 9004 Series CPUs • Up to 96 cores 	<ul style="list-style-type: none"> • Dual SP5 socket for two AMD EPYC™ 9004 Series CPUs • Up to 96 cores 	<ul style="list-style-type: none"> • Dual SP5 socket for two AMD EPYC™ 9004 Series CPUs • Up to 96 cores
Memory Slots & Capacity	• Up to 6TB 3DS ECC DDR5-4800MHz in 24 DIMMs		
On-Board Devices	System on Chip Hardware root of trust IPMI 2.0 with virtual-media-over-LAN and KVM-over-LAN support ASPEED AST2600 BMC graphics		
I/O Ports	Integrated IPMI 2.0 plus KVM with dedicated LAN 2 USB 3.0 ports 1 VGA port 1 TPM 2.0 header		
Drive Bays	<ul style="list-style-type: none"> • 8 hot-swap 2.5" NVMe/SAS/SATA drives₁ (Option for up to 12 drives) • 2 M.2 NVMe PCIe 3.0 x4 	<ul style="list-style-type: none"> • 12 hot-swap 3.5" NVMe/SAS/SATA drives₁ • 2 M.2 NVMe PCIe 3.0 x4 	<ul style="list-style-type: none"> • 24 hot-swap 2.5" NVMe/SAS/SATA drives₁ • 2 M.2 NVMe PCIe 3.0 x4
Expansion Slots	• 3 PCIe 5.0 x16 Slots	• Configuration options for PCIe 5.0 Slots: – 4 PCIe 5.0 x16 Slots – 8 PCIe 5.0 x8 Slots – 1 PCIe 5.0x16 Slot plus 6 PCIe 5.0 x8 Slots – 2 PCIe 5.0x16 Slots plus 4 PCIe 5.0 x8 Slots – 3 PCIe 5.0x16 Slots plus 2 PCIe 5.0 x8 Slots	When configured with 24 NVMe drives: – 1 PCIe 5.0 x16 Slot, 2 PCIe 5.0 x8 Slots When configured with 24 SATA drives: – 4 PCIe 5.0x16 Slots, 8 PCIe 5.0x8 Slots, 1 PCIe 5.0x16 Slot plus 6 PCIe 5.0x8 Slots, 2 PCIe 5.0x16 Slots plus 4 PCIe 5.0x8 Slots, 3 PCIe 5.0x16 Slots plus 2 PCIe 5.0x8 Slots
Networking	1 AIOM/OCF 3.0 network interface slot	1 AIOM/OCF 3.0 network interface slot, up to 2 AIOM slots with optional kit	1 AIOM/OCF 3.0 network interface slot, up to 2 AIOM slots with optional kit
BIOS	AMI Code Base 256 Mb (32 MB) SPI EEPROM		
Front Panel	Power On/Off and System Reset buttons Power status, HDD activity, network activity, system overheating, fan failure, and UID LEDs		
System Management	<ul style="list-style-type: none"> • Built-in server management tool (IPMI 2.0, KVM/media over LAN) with dedicated LAN port • Redfish APIs • Supermicro SuperCloud Composer • Supermicro Server Manager (SSM) and Supermicro Update Manager (SUM) 		
Power & Cooling	1200W Redundant Power Supplies (Titanium Level) ₂	1600W Redundant Power Supplies (Titanium Level) ₂	1600W Redundant Power Supplies (Titanium Level) ₂

Further Information

To learn more about Supermicro's H13 Hyper Servers, please visit:

https://www.supermicro.com/en/products/hyper?pro=generation_new%3DH13

To learn more about Supermicro's H13 Product Lineup, please visit:

<https://www.supermicro.com/en/products/aplus>